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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/423,534 | 12/14/1999 | MATTHIAS LAU | 1-14746 | 6863 |

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EXAMINER

LUU, THANH X

ART UNIT PAPER NUMBER

2878

DATE MAILED: 12/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/423,534

Applicant(s)

LAU, MATTHIAS

Examiner

Thanh X Luu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 17, 2002 has been entered.

2. Claims 23-44 are currently pending.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "30" and "40" in Figures 3 and 3b; "30'", "30'", "15", "16", "4", "38" in Figure 4 A; "35" in Figure 9; "35" in Figure 11; "4", "15", "16" in Figure 16; "30'", "30'", "30" in Figure 22 proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 23-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 23, line 4, "which light" lacks proper antecedent basis. It is unclear if Applicant is referring to the excitation light or the fluorescent light. In line 11, "the at least one optical conductor" lacks proper antecedent basis. In line 12, "fluorescence light" lacks proper antecedent basis. It is also unclear if Applicant intended to refer to fluorescent light.

Regarding claim 26, it is unclear in its given context what arranged "in each case" is referring to.

Regarding claims 24, 27 and 39, "the optical conductors" lacks proper antecedent basis. It is unclear if Applicant is referring to the first or second optical conductors only, or both of the first and second optical conductors. It is unclear in its given context if "outer ends" refer to "end faces" of the optical conductors or not.

Regarding claim 28, "the at least one second optical conductor for exciting light" lacks proper antecedent basis. That is, it is unclear how a second optical conductor excites light, when the second optical conductor is claimed (in claim 23) to direct fluorescent light to a detector. In addition, "further fluorescent light" lacks proper antecedent basis. It is also unclear in its given context how one conductor is "arranged in an alternating fashion."

Regarding claim 31, "the surface" lacks proper antecedent basis. It is unclear which surface is being referred to.

Regarding claim 35, it is unclear in its given context if "an optical conductor" and "at least one optical conductor" refers to at least one first or one second optical conductor as claimed before or not. At least from claim 23, at least one second optical conductor directs fluorescent light to the detector. Further, it is unclear in its given context what it means for the support and the planar optical conductor "being optically separated as far as into the region of the angular surface."

Regarding claim 36, it is unclear in its given context if "at least one additional optical conductor" and "at least one further optical conductor" refers to at least one first or one second optical conductor as claimed before or not.

Regarding claim 39, "fluorescence-exciting light", "one of the at least one layers" lacks proper antecedent basis.

Claims 25, 29, 30, 32-34, 37, 38 and 40-44 are indefinite by virtue of their dependency on an indefinite claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 23-28, 31-37, 39, 40 and 43, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Saaski et al. (U.S. Patent 5,606,170).

Regarding claims 23, 26-28, 31-33 and 43, Saaski et al. disclose (see Figures 1-16) a device for measuring fluorescence excited by light and configured to detect

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fluorescence quenching fluid materials (see column 31, lines 35-45), which has at least one layer (not shown; see column 6, lines 5-12) applied to a support (cladding of fiber) or a transparent body, the layer contains a fluorescing material, the device having at least one light source (12 or 28) which emits light of at least one wavelength that excites the fluorescence in the layer, the light is directed through the support onto the layer by at least one first optical conductor (40), the fluorescence being directed by at least one second optical conductor (46) onto at least one detector (26) for determining the intensity of the fluorescence, wherein the end faces of all the optical conductors are arranged relative to one another as a function of their numerical apertures (see column 17, lines 53-65) and with reference to the position of the at least one layer, and the at least one second optical conductor are arranged as a bundle in a the shape of a ring (see Figures 9-11), the conductors pointing towards the fluorescing material, wherein the at least on second conductors are arranged in an outer ring. Saaski et al. further disclose (see Figure 2) a launching optical system (32, 36, 38) is arranged between the light source (28) and the at least one first optical conductor. In addition, Saaski et al disclose (see column 31, lines 50-66) the surface of the support (cladding of 144a) is surrounded by a medium of lower refractive index (152a) and is mounted in an exchangeable fashion (see Figure 4A), wherein the exciting light is totally reflected in a region of the layer and total reflection occurs. The support is elongated in a plane. Saaski et al. do not specifically disclose the light source, the detector and the optical conductors held in a measuring head. However, Saaski et al. do teach (see Figure 1) separate housings for holding the optical conductors, the light source and the detector.

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It would have been obvious to a person of ordinary skill in the art at the time the invention was made to dispose the elements of Saaski et al. in a measuring head to provide a compact and portable device. Further, since the Saaski et al. already teaches of the functional elements of the present invention, it would require only routine skill in the art to dispose those elements within a single housing.

Regarding claims 24 and 25, Saaski et al. disclose the invention as set forth above. Saaski et al. do not specifically disclose the structure of the measuring head. However, the specific structure of a measuring head or housing is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the measuring head or housing of the device of Saaski et al. flexible or partially bent in order to more easily maneuver the device upon use or to make the device fit more easily into certain spaces.

Regarding claims 34-37 and 39 and 40, Saaski et al. disclose the invention as set forth above. Saaski et al. do not specifically disclose the support being subdivided or having the structures as claimed. However, the specific structure of the support is design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to subdivide the support or provide a support configuration as claimed, in the apparatus of Saaski et al. to provide more flexibility or more resiliency support or more exposure to a target chemical as desired.

8. Claim 29, as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Saaski et al. in view of Pederson et al. (U.S. Patent 5,319,975).

Regarding claim 29, Saaski et al. disclose the invention as set forth above.

Saaski et al. do not specifically disclose the optical conductors are inclined at different angles with the end faces pointing toward the fluorescing layer. Pederson et al. teach (see Figure 1) inclining optical conductors wherein the end faces point towards a fluorescing layer (8). Thus, Pederson et al. recognize an alternative arrangement for such a device. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to arrange the apparatus of Saaski et al. in view of Pederson et al. as claimed to provide more direct excitation and improve detection.

9. Claim 41, as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Saaski et al. in view of Hesse (DD 106 086).

Regarding claim 41, Saaski et al. disclose the invention as set forth above. Saaski et al. do not specifically disclose a second detector for detecting a reference signal. Hesse teaches (see Figures) monitoring a reference signal through a second detector. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a second detector to detect a reference signal the apparatus of Saaski et al. in view of Hesse to aid in monitoring the correct operation of the device and improve detection.

10. Claims 30, 38, 42 and 44, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Saaski et al. as applied to claim 23 above, and further in view of Wagner (U.S. Patent 5,001,054) and Bessman et al. (U.S. Patent 4,431,004).

Regarding claims 30, 38 and 44, Saaski et al. disclose the claimed invention as set forth above. Saaski et al. do not disclose a heater or a temperature sensor as claimed. Wagner teaches (see Figure 2) using a device having conductors and a

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fluorescing layer for monitoring glucose. Bessman et al. further teach (see column 2, lines 37-45) that glucose sensors are temperature dependent and (see Figure 4) disposing a temperature sensor proximate a glucose sensor. Thus, Wagner recognizes that the device of Saaski et al. detect glucose and Bessman et al. recognize the sensitivity of glucose sensors to temperature. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a heater and/or a temperature sensor on the support of Saaski et al. in view of Wagner and Bessman et al. to obtain more accurate detection.

Regarding claim 42, Saaski et al. disclose the claimed invention as set forth above. Saaski et al. do not disclose insulating the light source and detector. However, as stated above, Bessman et al. teach that monitoring glucose is dependent on temperature. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to insulate the light source and detector in the apparatus of Saaski et al. in view of Wagner and Bessman et al. to reduce the affect of the heat from the light source and detector from affecting the detection, and thereby improve detection.

Response to Arguments

11. Applicant's arguments with respect to claims 23-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-

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0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
November 25, 2002



Thanh X. Luu
Patent Examiner